

**REMARKS**

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-6, 8-15, 17-20, 22-23, 26-27 and 29-30 are currently pending in this application. Claims 21, 24, 25 and 28 have been cancelled. No new matter has been added by way of the present amendment. The amendment to claims 1-2 is supported by previously presented claims 21 and 24. Claims 6, 15, 23 and 27 have been amended to more clearly recite the subject matter claimed. New claims 29 and 30 are supported by the Specification at, for example, page 68, lines 15-26. Accordingly, no new matter has been added.

In view of the amendments and remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

**Issues Under 35 U.S.C. §112, 2nd paragraph**

Claims 21, 23, 24, 27 and 28 stand rejected under 35 U.S.C. 112, second paragraph, as failing to particularly point out and distinctly claim the subject matter regarded as the invention. Applicants respectfully traverse.

Claims 23 and 27 have been amended to correct the informalities identified by the Examiner. Claims 21, 24 and 28 have been cancelled. Accordingly, this rejection is moot.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

**Issues Under 35 U.S.C. § 102(b)**

Claims 1-3, 5, 6 and 8-11 stand rejected under 35 U.S.C. §102(b) as anticipated by Uemura (U.S. 2003/0052328) (hereinafter Uemura '328). Applicants respectfully traverse.

Applicants initially note that the Examiner also appears to reject claims 12, 14, 15, 17-23 and 25-27 as anticipated by Uemura '328, although these claims are not explicitly identified on page 3 of the outstanding Office Action.

The Examiner asserts that Uemura '328 discloses a semiconductor element comprising a nitride semiconductor layer, an electrode connected to said nitride semiconductor layer and an insulating film covering at least a portion of the electrode. The Examiner further asserts that Uemura '328 discloses an electrode comprising a first metal film including silver, a second metal film completely covering the first metal film and a Au film "that inhibits a reaction with silver". The Examiner notes that the manner in which the claim is written does not specifically define what element(s) are inhibited by a reaction with silver.

Applicants respectfully submit that the Examiner has failed to establish a prima facie case of anticipation. For anticipation under 35 U.S.C. §102, the reference must teach each and every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present". *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.*

The present invention is directed, *inter alia*, to a semiconductor element, comprising a nitride semiconductor layer, an electrode connected to said nitride semiconductor layer, and an

insulating film covering at least part of said electrode, and further having the following features (see also Applicants' Figure 12(c)):

- (i) the second metal film completely covers the first metal film,
- (ii) the metal film (66b or 66c) disposed over the silver or silver alloy film (66a) constituting the first metal film (65) is formed such that the thickness (s, r or s+r) of a portion disposed on a side face of the film is lower than the thickness of a portion disposed over the silver or silver alloy film (p, q or p+q)  $[(s, r \text{ or } s+r) < (p, q \text{ or } p+q)]$ , and
- (iii) the first metal film has sides, and the second metal film (7) is formed such that portions of the second metal film disposed on the sides of the first metal film (z) are thicker than a portion disposed above the first metal film (x)  $[(z) > (x)]$ .

Uemura '328 discloses a Group III nitride compound semiconductor light-emitting element. Applicants note, however, that layer "25" in Uemura '328, which the Examiner characterizes as a "second metal film" does not completely cover the "first metal film" (layers 21-24) (see Uemura's Figs. 1 and 3). Clearly, Uemura '328 does not explicitly or implicitly teach a second metal film that "completely covers" the first metal film.

Furthermore, Uemura '328 does not teach that a metal film disposed over a silver or silver alloy film is formed such that the thickness of a portion disposed on a side face of the film is lower than the thickness of a portion disposed over the upper surface of the film, as presently claimed.

Additionally, Uemura '328 does not explicitly or implicitly teach a second metal film formed on a first metal film, wherein portions of the second metal film disposed on the sides of the first metal film are thicker than a portion disposed over the upper surface of the first metal film.

Clearly, Uemura '328 fails to explicitly or implicitly teach each and every aspect of the claimed invention, as required by 35 U.S.C. 102. Accordingly, this rejection is improper.

Reconsideration and withdrawal of this rejection are thus respectfully requested.

**Issues Under 35 U.S.C. § 103(a)**

Claims 4 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Uemura '328 in view of Kim et al. (*Microstructural study of Pt contact on p-type GaN*) (hereinafter Kim et al.). Claims 24 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Uemura '328. Applicants respectfully traverse.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, there must be a reason why one of ordinary skill in the art would modify the reference or combine reference teachings to obtain the invention. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed

new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.*

As discussed above, Uemura '328 fails to teach a semiconductor element, comprising a nitride semiconductor layer, an electrode connected to said nitride semiconductor layer, and an insulating film covering at least part of said electrode, as presently claimed. Kim et al. fails to cure these deficiencies.

As disclosed by Uemura '328, even when a silver-containing metal film is covered by a non-silver containing metal film, migration of silver cannot be completely and effectively suppressed (see "Description of the Related Art" in Uemura '328). However, Applicants have discovered that it is possible to effectively suppress migration of silver by providing a semiconductor element having the presently claimed configuration, wherein both a metal and a second metal film are formed on a silver or silver alloy film (in this order), and wherein the silver or silver alloy film is formed such that the thickness of a portion disposed on a side face of the film is lower than the thickness of a portion disposed over the upper surface of the film, and wherein portions of the second metal film disposed on the sides of the first metal film are thicker than a portion disposed on the upper surface of the first metal film.

Evidently, the cited references, alone or in combination, fail to teach or suggest every limitation of the instant invention. For this reason alone, this rejection should be withdrawn.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion


All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Andrew D. Meikle, Reg. No. 32,868 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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